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The Navy SDW long range scout plane (Wright T3 engine) which has a cruising range of 2400 mi

Official Photo, U. S. Navy

VOLUME XVII

NUMBER 4

SPECIAL FEATURES

PLANS FOR SCHNEIDER CUP RACE
PROGRESS OF AMERICAN WORLD FLIGHT
NEW POLICY OF THE JOINT AERONAUTICAL BOARD
FITTINGS AND OTHER STRUCTURAL PARTS OF AIRPLANES

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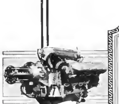

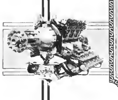

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CONTENTS

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Championing a National Air Policy

ONE of the principal difficulties of getting a definite National Air Policy has been the lack of anyone in governmental circles who felt that it was a part of his duty. In Great Britain, France and Italy there are men of ability in the government who are charged with the responsibility for a national air policy.

In the United States, the Secretary of War is only concerned with aircraft as a comparatively small part of Army activities. The Secretary of the Navy regards the Bureau of Aeronautics in the light of an "adjunct" to the fleet activities. The Secretary of Commerce, whom the Winslow Bill would place in charge of civil aviation, probably regards his possible supervision of commercial aeronautics as he would another bureau. The Post Master General has in the Air Mail a most spectacular triumph of postal efficiency and persistence. The Secretary of State finds that international relations involve new aeronautical problems that are difficult to solve independently of the League of Nations Covenant. Air Disarmament is also one of the matters that he is called upon to consider from time to time.

It will be evident that when responsibility is so scattered that there is little hope for a disinterested point of view in formulating a National Air Policy. With this in mind, the second declaration in the suggested National Air Policy is that "a civilian, charged with championing a national air policy, is needed in the Government." This would not necessarily require a new office in the governmental organization. There are probably too many already. But there is a need for some civilian on whom the President could rely for advice and independent consideration of aircraft problems. The National Advisory Committte for Aeronautics has often acted in this role, but composed as it is mainly of the heads of air activities of the governemnt, it cannot be expected to give disinterested advice.

Until such time, therefore, as aviation takes its place as one of the important activities of the government, the best suggestion that can be made is that of charging some civilian at present in the government with the duty of championing a National Air Policy.

Chasing the Records

TEN of the eleven new American airplane records which have just been authenticated by the Contest Committee of the N.A.A. exceed the present world records of the corresponding classes. As a result, the N.A.A. has requested the International Aeronautic Federation to recognize these records as official world records.

Lieuts. John A. Macready and Harold H. Harris, A.S., and Lieuts. F. W. Wead and J. D. Price, U.S.N., who made this sizeable list of records thus have furnished renewed proof of American determination not to let any world record get out of the United States, and of conquering those that may be held by any other country. What adds to the value of this demonstration is that with one exception everyone of these records was made in an American built aircraft equipped with an American engine. The Army TP1 plane, fitted with the Liberty engine, and the Navy CS2 seaplane, built by the Curtiss Aeroplane & Motor Co. and fitted with the Wright T2 engine, all share the glory of this new achievement.

It is understood on good authority that from now on all record attempts which the Army Air Service may undertake will be made in all-American aircraft, that is, machines designed as well as built in this country, and equipped with American designed and built engines. In the Naval Air Service all recent records were so made owing to the virtual exhaustion of war time equipment.

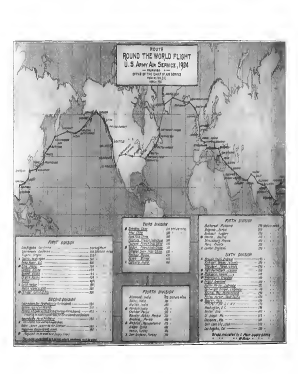
Will He or Won't He?

FREDERICK B. PATTERSON, president of the National Aeronautic Association of U.S.A., announced at a dinner tendered him in New York upon his return from Europe that Sadi Lecointe, the famous French pilot, would be entered in the Pulitzer Trophy race to be held at Dayton, Ohio, next October, and that he will fly a Dewoitine racer now being built for this purpose.

As AVIATION reproduced this statement at the time, our readers will be interested to learn that *L'Aéro-Sports* of Paris in its issue of June 3, 1924, formally states that Sadi Lecointe, if he will participate at all in the forthcoming Pulitzer Trophy race, will not fly any plane other than one of the Nieuport-Delage company, of which firm he is the chief test pilot.

In view of the fact that the National Aeronautic Association announced last year before the St. Louis Air Races (see AVIATION, Oct. 1, 1923) that the Italian pilots Brack Pape and Mario Fossati would participate therein, which neither of them did as a matter of fact, it would seem desirable that the N.A.A. elucidate the Sadi Lecointe mystery at an early date, rather than wait for the eve of the race to do so.

Further advices from Paris indicate a very great uncertainty as to any French entries. It appears that the manufacturers there have very sensibly decided to determine whether their machines have any chance of winning before risking their reputation in a so called "international" race. Calling these races international just because foreign entries are invited seems to us to savor a little of deluding the public. At Detroit and at St. Louis there was created an impression that this event was an international affair whereas it was merely a series of races between our Air Services. Now, with the Navy out of the races it would be much nearer the truth to call it an Army Air Service meet than any other. Correctness in such matters, where the War Department is participating to such a degree would seem to be a matter of plain fair dealing with the public.



Progress of American Round the World Flight

Lieutenants Smith, Wade and Nelson Have Completed 18,450 Miles Out of 24,000 Called for in Schedule

When, on July 17, the three Air Service World Cruisers reached Brough, England, they completed 18,300 mi. out of 24,000 mi called for in the schedule for their globe circling flight. They still have a distance of about 6000 mi to fly before they reach Santa Monica, Calif., their point of initial departure from the United States. Maj. Stuart Maclaren, the British world flier who is circling the world the other way has still about 11,000 mi to go, and the worst part of the trip to cover. There is little chance that he can beat the American pilots unless unforseen accidents and delays prevent them from completing their trip on scheduled time, five months.

The Ships and their Crews

Following are the names of the three American round-the-world planes and of their crews

Airplane Chicago—Pilot, Lieut Lowell H. Smith. Mechanic, Lieut. Leslie P. Arnold, alternate pilot.

Plane Boston—Pilot, Lieut Leigh Wade. Mechanic, Sec. Lieut Henry H. Ogden.

Plane New Orleans—Pilot, Lieut Erik Nelson, engineer officer of the flight. Mechanic, Lieut John Harding, A.S. O.R.C., maintenance officer.

These three planes were originally designated with the numbers 2, 3 and 4. Plane No. 1, the Seattle, was Maj. F. L. Martin's ship, which was lost in Alaska.

Our world fliers are due to complete their long flight in Santa Monica, Calif., on about Sept. 1, if all goes well, estimates of the Army Air Service indicate. This is based upon stops in Hull, England, for the change from wheels to pontoons and radio installations, and several other stops in anticipation of bad weather.

The estimates are based upon the planes reaching London on July 15, and staying there ten days before the final lap over the north Atlantic Islands is undertaken. They should reach the mainland of North America, Labrador about Aug. 19, thence flying to Newfoundland, Nova Scotia, Boston, New York, Washington, and then the transcontinental jump, for which three days time is allowed.

Following is a brief log of the American World Flight, giving the time elapsed to cover the various legs, and the principal incidents.

Log of the Flight

March 17—Santa Monica-Sacramento 350 mi 4 hr 30 min.

March 18—Sacramento-Eugene. 375 mi 6 hr 5 min.

March 18—Eugene-Seattle. 240 mi 3 hr 5 min. All planes put in new engines and substituted pontoons for wheels.

April 6—Seattle to Prince Rupert, B. C. 650 mi in 8 hr 10 min., except for the Boston which made it in 7 hr 25 min. Plane Seattle was damaged on landing in snowstorm, breaking landing gear struts.

April 10—Prince Rupert to Sitka, Alaska 300 mi. in 4 hr.

April 13—Sitka to Seward, Alaska 600 mi. in 7 hr 37 min. Scheduled stop at Cordova omitted.

April 15—Seward to Chignik, Alaska, 450 mi. in 8 hr. except for the Seattle (Major Martin) which was forced down at Kanatak with a leaking crankcase.

April 17—Chignik to Dutch Harbor, Unalaska, 400 mi in 6 hr 10 min by Chicago, Boston and New Orleans. Wade's motor changed.

April 25—Plane Seattle flew from Kanatak to Chignik.

April 30—Plane Seattle left Chignik for Dutch Harbor but crashed into mountain. Crew saved and walked to Port Moller arriving ten days later.

May 3—Three remaining planes, Boston, Chicago and New Orleans flew to Dutch Harbor—Nazan (Island of Atka) 350 mi 4 hr 15 min.

May 9—Nazan-Chicagoff 530 mi 10 hr 50 min.

May 16—Chicagoff-Komandorski Kashiwabara Bay, Paramushiru 900 mi. 12 hr 5 min.

May 19—Paramushiru, Hitto Kappu Bay-Yetorofu 510 mi 6 hr 50 min (est.)

May 22—Yetorofu-Minato-Kasumiga Ura. 780 mi 12 hr 50 min.

May 22-June 1—All planes changed motors.

June 1—Kasumiga Ura-Kushimoto. 350 mi. 4 hr. 20 min.

June 2—Kushimoto-Kagoshima. Smith forced landed, changed motor 380 mi 6 hr 12 min.

June 3—Kagoshima-Shanghai. Planes Boston and New Orleans. 610 mi 7 hr 32 min.

June 4—Kagoshima-Shanghai. Plane Chicago. 610 mi. 6 hr 20 min.

June 7—Shanghai-Amoy 555 mi 9 hr 45 min.

June 8—Amoy-Hong Kong 300 mi 3 hr 15 min.

June 11—Hong Kong-Haiphong 500 mi 6 hr 29 min.

June 13—Haiphong-Tourane 395 mi 5 hr 15 min (est.) Plane Chicago had forced landing at Hue, due to water leak. Changed motor.

June 16—Tourane-Saigon 530 mi 6 hr 35 min.

June 18—Saigon-Bangkok 675 mi 9 hr (est.)

June 20—Bangkok-Tavoy-Rangoon 450 mi 6 hr.

June 25—Rangoon-Akyab 445 mi 4 hr 30 min.

June 26—Akyab Calcutta 400 mi. 5 hr 35 min. All planes changed engines, put on new wings and substituted wheels for the pontoons.

July 1—Calcutta-Allahabad 475 mi 6 hr 20 min.

July 2—Allahabad-Umballa 530 mi 5 hr 25 min.

July 3—Umballa-Multan 325 mi 4 hr 42 min.

July 4—Multan-Karachi 475 mi 7 hr 10 min. Plane New Orleans cracked cylinder and had serious water leak. All planes changed engines.

July 7—Karachi-Charabar 330 mi 4 hr 55 min.

July 7—Charabar-Bendar Abbas 330 mi 4 hr 5 min.

July 8—Bendar Abbas Bushire 400 mi 4 hr.

July 8—Bushire-Bagdad. 455 mi 6 hr 30 min.

July 9—Bagdad-Aleppo. 480 mi 6 hr 5 min.

July 10—Aleppo-Konia-Constantinople. 585 mi 7 hr 40 min.

July 12—Constantinople-Bucharest 290 mi. 4 hr 40 min.

July 13—Bucharest-Budapest-Vienna 650 mi 10 hr.

July 14—Vienna-Strasbourg-Paris 650 mi 10 hr 25 min (est.)

July 16—Paris-London 225 mi 3 hr 5 min.

July 17—London-Brough 155 mi 2 hr 10 min (est.)

The elapsed time from Santa Monica has been 120 days of which the ships have flown 38 days. The total distance covered is 18,300 mi and the approximate flying time is 243 hr 35 min.

British World Flight

Maj. A. Stuart Maclaren, leader of the British round the world flight, and his two companions, flew in the Vickers Vulture on June 14 from Minato, Japan to the island of Yetorofu, in the Kurile Group, landing on Lake Toshimoye. He stopped en route at Kushiro, to take fuel on board.

After being fog bound on Yetorofu for two days, the airmen hopped off on July 16 for Paramushiru Island, the most northerly but one of the Kuriles. When the fliers did not arrive at their destination two Japanese destroyers started searching for them. When two days had elapsed and no word came from the fliers people began to get worried. On the third day a commercial vessel reported that the fliers were at Uruppu Island not far from their starting point. It appears that due to heavy fog they had thought it advisable to land but had been unable to communicate with the mainland.

Fittings and other Structural Airplane Parts *

By P EYDAM

The strength and reliability of airplanes depend greatly on the careful design and execution of the fittings, couplings and other highly stressed parts. In designing these parts, attention must be paid to the possibility of supplementary stresses, which in certain cases are engendered only by alterations in form during flight or during the loading tests.

Since fittings are made with the smallest possible dimensions, for the purpose of saving weight, and autogenous welding is extensively employed, work on these parts must be carefully supervised, in order that they may not be weakened at specially

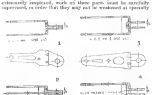


Fig. 1 Wing spar joint Fig. 2 Same reinforced Fig. 3, Corresponding fuselage fitting. Fig 4 Same reinforced

stressed points by badly formed welds, nor the material burned in the neighborhood of the welded seams

Failures of fittings, which occur during strength tests, are due in part to faulty design, but more often to careless workmanship Since the use of autogenous welding cannot be foregone in airplane construction, owing to its speed and simplicity, the possible weakening of stressed sections should be carefully avoided, and it is of special importance that welded seams should not be permitted to carry the load alone

The possibility of this is evident from the fact that it has frequently happened that airplane parts which failed under test were altered, or replaced by new ones of improved design, by cooperation between the testing station and the factory. Such alterations, however, necessitate the expenditure of money, time and material by both parties, which outlay can usually be avoided by the exercise of sufficient foresight In many cases static tests produce no structural changes nor ruptures, whereas alternating stresses, vibration and the influence of the weather produce such conditions that rupture follows, although the parts had sufficient strength originally The more important parts must, therefore, even when of proved strength, be occasionally tested for increased loads and also in order to avoid the possibility of defects creeping in during subsequent quantity production

The following remarks relate to actual examples, which have been observed in strength tests on airplanes.

Fittings for Wing Spar Joints

A shoe (Fig 1) broke during a nose-dive test at 99 per cent of the required load, after undergoing strength tests without noticeable alterations in form The structure showed numerous welds. During the nose-dive test, the lugs securing the wing to the fuselage were subjected to a strong bending stress which proved too great for the welds at the base of the lugs and the latter were wrenched off. The sheet metal was also bent sharply back and broke with the lug It was found that the parts were only superficially connected by the welds, the seams being only 1 mm (0.039 in.) thick, as against a plate thickness of 2 mm (0.079 in.)

This fitting was, therefore, altered (Fig 2) by inserting instead of the former spacing piece, an intermediate strip, which was held in place by the bolt through the spar, thus relieving the welds. This strip was a little thinner than the spacing piece, while the lugs were somewhat strengthened. With this method of construction, even an imperfect weld need not necessarily cause premature rupture The original shoe weighed 170 g (6 oz.) while the altered shoe weighed 31 g (1.1 oz.) more

In the corresponding fuselage fitting (Fig 3) the lugs were also strengthened (Fig 4), the ends of these, in the interior of the fitting, being bent away from each other so as to substitute tension for bending stress in the material of the shoe and the welds. The weight of this fitting was increased from 173 to 198 g (6.1 to 7 oz.)

In a coupling between an upper wing spar and the cabane (Fig 5), the end was bent during a gliding flight test and the eye-bolt fitting was subjected to a heavy bending stress toward one side If the end of the shoe is once bent, the upper half of the fitting can be easily ruptured

In designing this part, it was evidently assumed that the load on the main bracing wires, transmitted to the spar, would be sufficient to counteract the bending moment from the load in the end portion of the fitting In order to reduce the bending stress, the eye was brought nearer to the base, and the transition from the rim to the eye was made more gradual, thus reducing the shearing stress near the rim. Abrupt transitions must be avoided in all such fittings. It is better in every way to weld the eye-bolt all around to the shoe and not to limit the union to one or two points.

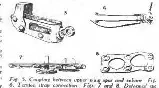


Fig 5. Coupling between upper wing spar and cabane Fig. 6. Tension strap connection Figs. 7 and 8. Deformed eye plate fittings

It is frequently the case that the tensile load between the spar joints of the lower wings, is not sufficiently taken up by the transverse members of the fuselage Tension bands or compression tubes, which at the same time take up the load when landing, are, therefore, recommended for use with wooden fuselages These must, however, be so connected to the fittings to which the spars are coupled as to obviate the possibility of any bending stress being set up by the attachment. Often the tension members did not lie in the plane of the stress, so that rupture resulted through the supplementary bending moments

The tension member in Fig 6 shows a defect of this kind This member consists of straps across the fuselage, so as to give additional stiffening, said straps being connected to the fuselage fittings by bolts. Since these bolts lie outside the

*From *Technische Berichte*, Vol. III, No. 6, pp. 198-208 (1918) N.A.C.A. Technical Note No. 180

direction of tension, bending moments arise. The lugs, through which the bolts pass, bend and the bolts break. The straps must either be connected so as to bring the bolts into the same plane or they must be replaced by wires with turnbuckles

Fittings for Strut Connections

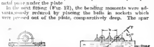
Eye-plate fittings have frequently failed, both under test and during flight, the fitting usually bending at the holes in the flange plate (Figs. 7 and 8). Owing to the oblique direction in which the tension in the wire acts, one edge of the rim of the eye-plate base is pressed into wood, while the other side bends up the flange plate, the eye-plate usually shearing through chiefly because the transition from the base of the eye-plate to the lug is abrupt These eye-plate fittings are fundamentally unsuitable for taking up loads in an oblique direction and it would be better to dispense with them entirely in the future

Since it is difficult to ascertain the forces arising in these fittings, experiments for the purpose of determining suitable dimensions for eye-plates and flanges were tried with two different types (Figs. 9 and 10). Each fitting was attached to a spar (Fig. 11) and subjected to a load P acting at an angle of 45 deg. The tests showed that with an eye-plate of 25 mm (0.98 in.) base diameter and 2 mm. (0.079 in.) thick deformation began at 1000 kg (2205 lb.) and the eye-plate sheared through at 1500 kg (3307 lb.) When the flange was made 5 mm (0.197 in.) thick, deformation first began at 1500 kg and the rupture limit rose to 1900 kg (4145 lb.) Here the eye-plate was the first to give way. Tests with eye-plates of 25 mm bore gave no better results. The last three tests showed that the breaking load did not increase in proportion to the thickness of the plate, but remained comparatively small for the thicker plates.

The connections were improved by increasing the thickness of the lugs from 1.5-2 mm. (0.059-0.079 in.) to 2.5 mm. (0.098 in.), the eye-plates being made the same thickness

In attaching the fittings to the spars, the plates are usually set into the spar, or into the plywood with which it is covered (Fig 10) This method depends too much on careful workmanship and it has often happened that the base was not accurately fitted so that the plate was bent while being screwed into place It is, therefore, better to place a suitably shaped metal piece under the plate

In the next fitting (Fig. 12), the bending moments were advantageously reduced by placing the bolts in sockets which were pressed out of the plate, comparatively deep. The spar



Figs 9 and 10 Different types of eye plate fittings. Fig 11. Corresponding spar attachment

was bored through at the neutral axis and completely enclosed by the fitting, so that the forces were uniformly distributed throughout. Sufficient play had to be allowed in the holes through which the bolts passed, in order to prevent the latter being bent For this reason, the holes were somewhat elongated The fitting weighs 560 g (19.75 oz.), but can be lightened by modification in several ways

In a strut fitting with shackle and wire attachments (Fig. 13), the eye of the drag wire was wrenched off during the sand loading test for head resistance The eye did not lie in the direction of the tension in the wire or cable and was, therefore, subjected to excessive stress. Should the drag wire be attached at another point, this connection could be recommended as being suitable and light. In many cases, the shackle bolts were bent (Fig 14) thus causing rupture.

The usual construction of shackles (Fig 15) is capable of such improvement. Even when the shackle plate is cut away at the middle of the bolt (15b), the latter can carry nearly 1½ times the load. The form shown in 15c, owing to a further decrease of the bending moment, can carry almost double the load. The bent form, however, shown in Fig 15d can take 6½ times the load of an ordinary shackle (Fig 15a), if k. is made equal to 0.66 k. Shackles of this type have breaking

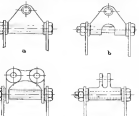


Fig. 15. Different types of shackle designs

strengths up to 3400 kg (7496 lb) In this case, the shackle plate tore and the bolt began to shear, as can be seen in the illustration on the left of Fig 14 A load of 1500 kg (3307 lb) was acting in the opposite direction. In no case was deformation of the shackle itself observed In a shackle of the old type (on the right of Fig 14), the bolt bent under a load of only 1800 kg (3968 lb)

In the otherwise efficient strut attachment for all-metal airplanes (Fig 16), owing to insufficient play between the strut and the fork, the former is subjected to a bending stress when the wings sag, with the result that the strut eye is bent, and the strut may break The strut eye must, therefore, be thickened

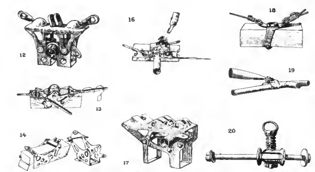
The Handley-Page airplane shows carefully designed fittings. Sleeve connections are used throughout, being attached to the spars by bolts through the neutral axis.

In the light and efficient fitting shown in Fig 17, attention must be paid to the flanging of the bracing wire lugs, to ensure that they are not too shallow In several cases, the lugs were so short as to prevent the bolts from fitting properly, with the result that they were subjected to bending stresses.

Internal Bracing

Since the internal bracing of the wings is subjected to heavy stresses due to head resistance, the rigidity of the wing can be greatly increased by the careful construction of this bracing In one instance, by diminishing the area braced, increasing the surface of the fitting in contact with the spar and slightly strengthening the spars, the strength to resist head loads was eventually made adequate. Defects in this direction must, however, be discovered and eliminated in the shops, by preliminary tests or strength calculations, in order that extensive alterations may not be necessary after the delivery tests.

One fitting (Fig 18) was bent during the test for head resistance, owing to insufficient width of the strap around the spar The width of the strap around the spar should be at least equal to half the circumference of the spar. The insignificant increase in weight is more than offset by the in-



Figs 12-13-14 Different types of spar fittings Fig 16 Strut attachment for all-metal airplane Fig 17 A light and efficient fitting Fig 18 A fitting that failed. Fig 19. Strut fastening between stabilizer and fin. Fig 20 Hinge joint attaching rudder to fin

creased stiffness of the wing The eyes of the lugs for the internal bracing frequently break off and need subsequent strengthening

Bracing Wires

The fracture of smaller turnbuckles frequently happens, owing to the internally screwed sleeves being badly tapped, thus producing bending stresses in the screwed ends, in addition to the tension for which they are designed In one steel turnbuckle the sleeve was so carelessly tapped, that the axis of the screw was bent out of center by a distance equal to the diameter of the screw Under these circumstances, the additional stress in the plane of the eyes amounted to an increase of 50 per cent in the breaking load on the thread As the stress on the edges of the eyes is still greater, failure at this point is easily explained, especially if the parts are bronze The eccentricity can be diminished by bending the screwed sleeve, but small screws can frequently be broken in this way In turnbuckles with rounded eyes, fitting between forks, the pin is subjected to bending stress, though it should only be subjected to shearing stresses

Carelessly made splices are a frequent cause of trouble Some factories only splice the outer layers of the cables, while others carry it also into the central portion Although tests have shown that a splice may possess sufficient strength when only the outer layers are spliced, the safety of the splices in this case depends on the care exercised by the workmen Such splices gave way under load tests, the core being pulled out of the surrounding spliced layer If the splice is carried through to the core, defective workmanship occurs more rarely and can be quite easily discovered by external inspection

Splices often broke because they were soldered, not with a soldering iron, as prescribed, but with the aid of a blow lamp, the wires being thus softened The necessity of using an acid-free soldering liquid is also frequently overlooked The liquid then remains between the wires, which in time corrode and lose strength

Owing to complaints from the front, a number of splices by one factory were tested. While the permissible loss in strength at the splice is 10 per cent of the strength of the cable, the strength of the splices investigated varied between 100 per cent and 73 8 per cent of the strength of the cable. Such splices are naturally quite insufficient. It was also found that hydrochloric acid was used in soldering the splices, and that many of the soldered joints had corroded This case shows that splicing needs especially careful supervision and that breaking tests on selected splices are absolutely necessary

Control Gear

A common form of strut fastening (Fig 19), which serves to connect the horizontal tailplane with the fin, often fails under test The fitting at the fin end bends under a very small load, thus subjecting the strut to a bending stress, which can be avoided by the use of double gussets, or, as is often specified by stay wires between the elevator hinge and the fitting Such connections are also dangerous, in view of the possibility of their being bent during the transportation of the airplane on ground vehicles and subsequently breaking under the normal load which they are supposed to carry during flight

The hinge joint attaching the rudder to the fin (Fig 20) can be recommended as safe and practical It weighs only 0 73 kg (1 61 lb) Frequently these joints are made with only two eyes. In such a case, however, the bolt is subjected to a bending stress and, with large rudder loads, such joints have a tendency to jam. Since these hinge joints also make it easy to remove and replace the rudder, it is desirable that they should be employed more frequently for attaching the ailerons.

The structure of the ailerons is frequently too weak Since they are subject to alternating loads and vibrations during flight, these parts should be particularly rigid For this reason, it is also desirable to make the rib ends, between the rear spar and the trailing edge of the aileron, of box form. Then the often observed aileron failures would be avoided

Aeronautical Board is Reorganized

Secretaries of War and Navy Agree on New Functions of Board

The recent comment in AVIATION on the newly adopted policy of the War and Navy Departments regarding the Aeronautical Board was based on abbreviated newspaper dispatches So that our readers may form a complete idea of the new plan, the official text of the order is printed below in full

The following order supersedes the existing precept of the Aeronautical Board.

To Prevent Duplication

"In order to prevent duplication of effort and to secure a more complete measure of cooperation and coordination in the development and employment of the Army Air Service and Naval Aviation, the Secretary of War and the Secretary of the Navy have agreed upon the reorganization of the Aeronautical Board with functions, membership, and procedure as follows.

1 The Aeronautical Board will investigate, study, and report upon all questions affecting jointly the development and employment of the Army Air Service and Naval Aviation, referred to it by the Secretary of War, by the Secretary of the Navy, or by the Joint Board It will also be charged with the duty of originating consideration of such subjects when in its judgment, it is necessary, and of recommending whatever it considers essential to establish sufficiency and efficiency of cooperation and coordination of effort between the Army Air Service and Naval Aviation

2 In the execution of the foregoing, the following will govern

(a) All recommendations of the Aeronautical Board affecting joint policies or joint plans for the tactical or strategical employment of aircraft or for the location of air stations, will be addressed to the Joint Board for consideration and recommendation to the Secretary of War and the Secretary of the Navy.

(b) The Aeronautical Board will formulate and submit to the Joint Board for approval, suitable joint Army and Navy aircraft problems to be carried out each year

(c) The Chief of Air Service of the Army and the Chief of the Bureau of Aeronautics of the Navy will submit to the Aeronautical Board all questions which concern jointly the Army Air Service and Naval Aviation.

To Control Development Work

(d) The development of new types of aircraft, aircraft motors and aircraft accessories, or of weapons to be used from aircraft will, so far as practicable, be assigned to the Army or Navy and shall be carried on only by the Service to which assigned This restriction will not prevent the employment by either the Army or Navy of any types of aircraft or weapons which, after development are considered to be necessary for the accomplishment of its functions Questions relating to the development of new types of aircraft, aircraft motors and accessories or weapons to be used from aircraft will be referred to The Aeronautical Board for recommendation as to whether the Army or Navy shall be charged with the development.

(e) Whenever possible, training, repair and other aviation facilities of either the Army or Navy will be made available for or be used by the other Service

"3 The Aeronautical Board is specifically charged with the following

(a) Plans to prevent competition in the procurement of material Before arranging to purchase aircraft, each Service will ascertain whether aircraft of the type desired can be obtained from the other Service Joint plans for procurement of material in time of war will be submitted to the Joint Munitions Board.

(b) Consideration and recommendation of all projects for experimental stations on shore, for coastal air stations, and for stations to be used jointly by the Army and Navy, or for extensive additions thereto.

(c) Consideration of and recommendation in regard to all estimates of appropriations for the aeronautical programs of the Army and Navy before such estimates are submitted to Congress

(d) Coordination of the activities of the Army Air Service and Naval Aviation in the purchase of material abroad and coordination of their activities with the aeronautical activities of other branches of the Government and with the civilian aeronautical organizations

(e) Recommendations as to action to be taken on invitations of foreign governments to participate in aviation activities abroad and on the invitations of civilian organizations to participate in such activities in the United States.

(f) Cognizance of the issuing of licenses to civilians to operate aircraft in time of war

Membership of Board

"4 The membership of the Aeronautical Board will consist of

(a) For the Army

The Chief of the Air Service, the Chief of Training and War Plans Division, Office, Chief of Air Service, one member of the War Plans Division, General Staff, War Department, to be designated by the Chief of Staff of the Army The last named member, while holding such office, will not be eligible for duty with the Joint Board or the Joint Planning Committee.

(b) For the Navy

The Chief of the Bureau of Aeronautics, the Chief of Planning Division, Bureau of Aeronautics, one member of the War Plans Division, Office of the Chief of Naval Operations The last named member while holding such office, will not be eligible for duty with the Joint Board or Joint Planning Committee.

"5 The Secretary of the Board will be selected by the Secretary of War and the Secretary of the Navy, from the permanent personnel of either Department and detailed to this duty.

"6 The Aeronautical Board will hold regular monthly sessions and such extraordinary meetings as may be deemed advisable The Board will prescribe its procedure The senior member of the Board present will preside at its meetings The reports and correspondence of the Board will be authenticated by the Senior Officer of the Army and the Senior Officer of the Navy present at the meeting at which the action was taken"

(Signed.) JOHN W WEEKS
Secretary of War
CURTISS D WILBUR
Secretary of the Navy

By action of the Secretary of War and the Secretary of the Navy, Jarvis Butler, the Secretary of the Joint Board has been appointed Secretary of the Aeronautical Board.

New World Duration Record

A new world duration record without refueling was made on July 16-17, last, when the French aviators Coupet and Drouhin remained aloft in a Farman plane 37 hr 59 min 10 sec over a circuit laid out between Etampes and Chartres, France.

The new performance betters by 1 hr 54 min. 36 sec the non-refueled world duration record made by Lieuts John A Macready and Oakley G Kelly, A S, in a Fokker T2, and by 43 min. 44 sec the refueled world duration record made by Lieuts. Lowell H Smith, leader of the American World Flight, and John Richter in a DH4B.

Airplane Deafness

In an article written by Capt. Verner T. Scott, Flight Surgeon at Wheeler Field, H. T., on the above subject, he states that airplane deafness is a temporary condition caused by the explosions of an airplane motor and occurs when flights are of one hour's duration or longer and lasts from one to several hours, depending upon the length of the flight. That airplane deafness is a temporary condition is due to two factors—the comparative shortness of exposure to the motor explosions and to the partial protection afforded the auditory apparatus by the helmet. An aviator who recently flew across the continent in daytime hops stated that after flying six or seven hours his deafness and "ringing in the ears" continued all night and sometimes until noon next day. In the average cross-country flight of two hours, the deafness will last from one-half to one hour. During this deafness the ordinary conversational tone is unintelligible and conversation can be carried on only in very loud tones.

It is believed by some not familiar with aviation medicine that the deafness is caused by the changes in atmospheric pressure rather than the noise of the motor. That atmospheric pressure is not a factor in producing airplane deafness is demonstrated daily at the School of Aviation Medicine, Mitchel Field, Long Island, N. Y. This school has for teaching and research purposes a large "low pressure chamber" in which the barometric pressure can be lowered from 760 mm. (sea level) to 140 mm. (equivalent to 35,000 ft. above sea level), and although neither a hat nor a helmet is worn during the experiments there has never been a case of deafness experienced by anyone "going up" in this chamber.

If the changes in atmospheric pressure were a factor in producing deafness, it would occur more readily here in actual flight because of the more rapid change in pressure. To gain the same rapid changes of atmospheric pressure in actual flight an airplane would be compelled to ascend at the rate of 1,000 ft. per minute to 20,000 ft. and descend at the same rate. This, of course, would be done only in exhibition flying.

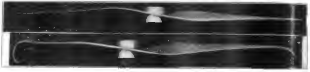
One would hardly consider a lady's powder puff as a means of prevention for airplane deafness, but that is exactly what Captain Scott recommends. He states that the simplest, safest and most practical arrangement is that made by sewing two powder puffs on the inside of the ear flaps of the helmet, making sure that the puffs fit snugly over the ears. It is very essential to have a snug fitting helmet; an ill-fitting helmet will balloon out along the sides of the face at the first blast of the propeller and will not only amplify the noise but will catch all the dust and wind.

The use of ear plugs made of hard rubber, paraffin, or wax should be discontinued. They not only have a tendency to irritate the auditory canal as any other foreign body, but they are unsanitary, and hard to keep clean. Another objection is that, being small, they are frequently lost when needed.

Cotton plugs find favor with some fliers, but their use is not recommended, cotton fibers and common collect in the canal, causing irritation and deafness until removed by a physician.

The powder puffs in the helmet can be removed and cleaned easily, cannot possibly irritate the auditory canal, and are always with the helmet. They block the loud explosions of the motor but allow sufficient noise through to determine a missing motor. Altitude and the rush of air prevent the powder puffs from becoming uncomfortably warm in summer. Care should be taken to select a powder puff of wool or a mixture of wool and cotton, as the cotton fibers become very flat after a little use, whereas the wool fibers stand out and remain soft and fluffy.

Commenting on Captain Scott's article, the Luke Field *Fuktale* recommends the plan and states that it was rather generally followed out on border patrols and found very satisfactory by the pilots. It is believed by the flight surgeon that many of the distressing symptoms from which the pilot suffers are due to the causes as laid down by Captain Scott; furthermore, that "air vibrations" caused by the motor, the propeller and the rush of the ship through the air are all responsible for the increasing number of cases of partial deafness. Long hours spent in the air cause great fatigue for the pilot, produce temporary deafness, temporary loss of visual acuity, and bring out any latent physical defect. These symptoms are not so pronounced in the front cockpit as they are in the rear. Repeated insults to the delicate membranes and organs of the special senses will in the long run produce more or less chronic disability. Therefore, it is to the pilot's self interest to protect himself in every way possible.



Where metal scores—Curtiss-Reed duralumin propeller as it looked after an airplane accident (lower picture), and after it had been reconditioned by the manufacturer (upper picture)

Metal Propeller Scores

Some time ago a Navy land Plane was wrecked at Pensacola, Fla., when its pilot nosed the machine over on landing. The ship was equipped with a Curtiss-Reed metal propeller, which is a duralumin forging, and this was very badly bent at the tips, as shown in one of the accompanying illustrations. It was first intended for the scrap heap, when someone, with typical Navy economy in mind, suggested that it might be straightened. Accordingly it was returned to the manufacturer for reconditioning, and this was successfully accomplished, as will be seen from the other illustration. For the straightening out process the propeller was reannealed, and after it had been straightened, tracked and balanced, it was found to be as good and useful as when it was new.

Metal has long been conceded to be superior to wood for airplane propellers, steel being most commonly employed, but where until forged duralumin was used that real progress was made. Duralumin weighs approximately one third as much as steel with the equivalent strength. Its ability to withstand hard usage naturally protects the propeller from hail, rain or spray, small particles, tall grass and what is more important, climatic conditions. Such conditions are at their worst in arid or tropical countries where the use of wooden propellers is a constant source of uncertainty, but where metal propellers are in no way affected.

Due to the greater strength of duralumin over wood for a given area, it is possible to use thin blade sections which are much more efficient than the usual thick blades of a wooden propeller. That there is a very appreciable increase in efficiency in a metal propeller was very strikingly shown in tests made with both types of propellers on last year's Pulitzer racers. The machine when equipped with a metal propeller was from eight to ten miles an hour faster than when equipped with a wooden propeller.

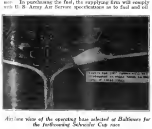
Plans for Schneider Cup Race

The general plans for holding the Schneider Cup Race are as follows. The base of the race will be Bay Shore Park, an amusement resort closed on the date of the race, situated about 14 mi. from Baltimore, in communication therewith by fast electric tram service and good roads.

The attached map and aerial photograph will show the general layout of the park. The course of the race is almost an equilateral triangle of 31 mi., contestants being required to make seven laps.

As to the details of taking care of planes and personnel of the various contestants, it will be noticed from the photograph that there is a white sandy beach to the right of the small pier. Here will be erected 12 one-plane canvas hangars with wooden floors and a 20 ft. runway, communicating with a 100 ft. runway which will slope from the sea wall down into the water, ending at such a depth as to give the planes flotation when mounted on their cradles. The hangars will be provided with electric lights, work benches and vices. Means will be provided for pulling the planes up the runway. A mobile work shop such as used in the Army Air Service, providing a lathe, drill press, emery wheel and complete set of tools, will be provided on the scene. During the race each plane will have assigned a power boat for towing purposes.

The flying and mechanical personnel will be handled as follows. The Flying Club of Baltimore will provide rooms at the Southern Hotel in Baltimore for pilots during their stay. The mechanic personnel will be housed in the building shown in the picture between the fountain in the circle and the water towers. This is the restaurant building of the park. Sleeping quarters will be on the second floor where there are toilet facilities and one large sleeping room which will be provided with army cots and blankets, and six single rooms which will be made available to the team captains. Heat and light is provided. On the first floor the dining room will be arranged and immediately adjoining there is a large kitchen capable of supplying many times the number we will have on hand. Here, the Flying Club of Baltimore will take care of three men per plane, plus one crew captain per entrant. Fuel and oil will be provided by the Flying Club of Baltimore. In purchasing the fuel, the supplying firm will comply with U. S. Army Air Service specifications as to fuel and oil.



Airplane view of the operating base selected at Baltimore for the forthcoming Schneider Cup race

It is requested that those entrants who may desire Benzol for doping their fuel or castor oil for lubrication, should advise the Flying Club of Baltimore of the amounts that they will need, so that they can be provided.

As to shipping arrangements, it is advisable that contestants should arrange to ship direct to Baltimore. The following information is available regarding steamship lines to Baltimore. The shipping representative has advised that from England the Atlantic Transport Line of London should be used. The Atlantic Transport runs regular sailings direct to Baltimore and we will provide means for loading the planes on flat cars and moving them direct to the scene of the race. From Italy, the Società Triestina di Navigazione, Trieste, Italy, should be used. This line, however, is understood to have spasmodic sailings and it would be well to have foreign representatives consult with this line as to whether they will have a ship coming to Baltimore about the proper time. It is to be pointed out that shipment to New York will require transshipment by rail to Baltimore, all becoming expensive.

It is suggested that all material direct be consigned to the firm of William H. Masson, Stewart Building, Steamship Agent and Custom House Broker, Baltimore, Md., and that ocean bills of lading and consular invoices be obtained, sending them forward by the fastest steamer, so that this firm may prepare the necessary entries and bonds for exhibition purposes to avoid any delay upon arrival at Baltimore or New York, as the case may be.

Course of the Schneider Cup race to be flown Oct. 24-25, next, at Baltimore, Md., and the American defender team

Book Review

THE COMPLETE AIRMAN. By G. C. Bailey, D.S.O., R.A.F. 269 pp., numerous illustrations. (E. P. Dutton & Co., New York.)

In this comprehensive volume the author provides the airman with a complete outline of the knowledge which he ought to possess, the mechanical and physical theory of flight, particulars of manufacture which enter into the construction of the plane, the actual design of the different types and their respective parts, including the engine and all its subsidiary details, the fuselage, the control system, the rigging and the propeller, the entire art of starting and running the engine and all the instruments required in flight, as well as general instructions for practical aerial work. Finally the various buildings of an airdrome, and chapters on the method of keeping the machines in condition and some useful meteorological data.

The author's style is simple and his manner of presentation clear. Where needed, designs and mathematical formulae are given, and care has been taken not to overload the text with detail either unnecessary or too erudite.

LIGHT PLANES AND GLIDERS

Edited by Edmund T. Allen

The Landing Gear

The landing gear problem has been attacked in a great variety of ways by light plane designers. In fact almost every new design has a brand new type of undercarriage. One reason for the latitude allowable on light planes is that the loads to which they are subjected are very small. The gross weight of the average light plane is under 600 lb., often it is under 500 lb. Even the smallest aircraft wheels and the lightest of struts give large factors of safety with such a small load to support. The slow landing speeds further reduce the strength required in the landing members.

A third factor which has further tended to relax the landing gear requirements for the light plane designer is the fact that these machines have, up to this time, been flown almost exclusively by very highly skilled test pilots. The landing gears have not been required to stand up to the service conditions of rough landings.

For such experimental service, in the hands of a skillful pilot, it is doubtful if it is really necessary to have any shock absorption whatever outside of that given by the deflection of the tires. There is a large body of precedent for such practice, both early and modern. Many of the types of 1912 and 1913 had a rigidly mounted axle, taking their shocks on partly deflated balloon tires. The early pilots became so expert in landing that they considered a large shock absorber action entirely unnecessary. Higher landing speeds and the demands of training machines, which would resist amateur banging about, brought in the type of rubber slung axle that is now standard almost everywhere.

The greater the axle travel in shock absorption, the lower of course, will be the necessary strength of the undercarriage for a given force of striking the ground. There is an attempt on the part of some designers—and this feature was evidenced also at the recent Prague Aero Show—to provide a strong enough undercarriage, with sufficient shock absorber travel to permit a safe glide into the ground without leveling off. The advantage of such a machine would be that it could be landed by the most inexperienced pilot, *providing he left it alone*. It is probable, however, that he would pull the tail down just after the wheels hit the ground, with a resultant great increase in angle of incidence while the flying speed was still high. And away the machine would go—up over a hangar or two. Unless snubbers were provided, the additional shock absorption would merely accelerate the bounce. The airplane for Mr. John Citizen without pilot's training may come eventually, but it is not here now, whatever may be our wishes. The untrained man cannot handle airplanes of today in the air, and it is useless to provide a fool proof landing gear.

The opposite extreme is found in some planes like the Nieuport Racer in which, when equipped with the large aspect ratio wings, Sadi Lecointe made the present world's altitude record. No shock absorption whatever is provided on this machine outside of the tires themselves. But, of course, no others than the great Sadi have landed it.

Light planes have found a middle ground. Landing at 30 to 40 m./hr., with a gross load of 400 to 600 lb., they are usually provided with very small wheels and about three inches of shock absorber travel. The semi-enclosed type was favored in England last fall, the decrease in head resistance seeming of greater importance than ground clearance. In Germany, some of the auxiliary motored gliders, and even the light planes themselves, landed on skids. The football type introduced in the Hannover Glider was found very satisfactory on such terrain as that surrounding the Wasserkuppe.

Another method of construction proved attractive by its extreme simplicity. On some of the gliders the axle was carried through the fuselage above the lower longerons and fastened to them by the shock absorber cord. The disadvantage for the light planes when this undercarriage was used was its lack of ground clearance for the fuselage and the propeller. It was, however, used on two types, notably the A N E C which won the efficiency prize. A modification of this gear was favored in France and England: lowering the axle below the fuselage just far enough to allow for shock

Photo Kadel & Herbert

New type of glider used for the tuition of students at the gliding school established near Paris by the French government

absorber travel. A single wide strut containing the axle slot was used on a number of machines at Lympne.

Complete elimination of rubber shock absorber cord proved quite difficult, although highly desirable. It was accomplished on the "Hurricane" light plane by replacing the axle tube with a leaf spring, fastened rigidly in the center to the narrow lower edge of the fuselage and carrying the wheels cantilevered at its ends. The Parnall Pixie also got rid of rubber cord very neatly. This little low wing monoplane took its shocks in the alloy steel tube axle and the steel tube struts, both of which provided some deflection in their cantilever ends.

Landing Gear of the A4

The original design of the A4 called for a landing gear of 20 in. x 2 in. steel wheels and a chrome-vanadium tube axle bent like a sulky frame, so that in the middle the axle could pass through the fuselage above the longerons, and at the ends carry the wheels well below the fuselage. This would permit of the shock absorber being wrapped directly on the longerons and axle, and at the same time give ample ground clearance for the propeller. The main advantage, however, was the elimination of axle between wheels, spacer tubes, wires, and the numerous struts that go to make up the generous 20 per cent resistance of many undercarriages. In this type of bent axle landing device, a single pair of braces is required to take the drag loads of landing. These can be attached forward or to the rear of the axle, to be used either in compression or tension whichever fits best the outline of the fuselage.

But this is only part of the story. When it came to find the alloy steel tube and get it bent and then heat treated the

International Newsreel Photo

Gliding is a strenuous sport, for those who fly as well as for those who tow the ship off and haul it up the hill again. This picture shows F. Schulz, who recently made a new unofficial duration record, in a new glider of his design

whole project had to be abandoned. Several days were spent in Philadelphia, Baltimore, and Washington in the effort to find a suitable material. The difficulty of getting material has been a stumbling block in the case of practically every phase of construction, especially if a new design was attempted. One discovered that the designer must be buyer, and buying data must accompany the design, step by step. Undoubtedly, the bent tubing of thin wall and high tensile strength could have been obtained eventually, but if this difficulty were to be encountered whenever repairs or replacements were needed, this feature of the design would, of course, be impractical.

Consequently, the straight axle was substituted. It was obtained in chrome-molybdenum steel of 18 gage and 1⅛ in. outside diameter from the Ohio Seamless Tube Co. Its tensile strength in the annealed condition was around 140,000 lb. per square inch. To this axle as a base was built a trapezoid of small steel tubes, the upper base of which passed through the fuselage and was fastened with rubber cord to the longerons. The drag loads were taken by two small tubes in compression pinned to lugs on the central fitting which takes the wing struts. Smith Motor Wheel "Buckboard" wheels are used with steel rims and 20 in. x 2 in. tires. No diagonal cross bracing is provided; the angle of the sides of the trapezoid is sufficient to take side thrust.

The New "Caltech" Glider

AVIATION is in receipt of a letter from A. A. Merrill in which he gives some interesting details on the further development work done on the "Caltech" glider at Ross Field. Mr. Merrill writes as follows:

"Very early in the experiments it was found that the rudder and fin as built, (they were copied from the Hannover Glider,) were not large enough to give the pilot control in yaw. In yaw the machine was at the mercy of the wind. Of course, this is not so bad in a glider as it would be in a power machine since for soaring a large "weather helm" should be carried nevertheless. Mr. Claverie, the pilot, demanded more yaw control. Now I could have increased the size of the fin and rudder, but I did not want to do this since it would have increased materially the torsion of the fuselage. I therefore took off both fin and rudder and substituted vanes hinged to vertical axes, which axes are fastened to the front beam of the wing at the tips. With this system I use, of course, K_y instead of K_T and therefore, while in operation, they are less efficient than is the rudder if we measure efficiency in terms of couple divided by induced drag. The vanes move out, and are connected to a split rudder bar so they can be moved independently or together. On the first flight with these vanes the pilot discovered that he had all necessary yaw control. He stated that the control was 300 per cent better.

"With these vanes Mr. Claverie rose against a 12 mi. wind, turned with the wind at 160 ft. elevation and landed down wind. He did this three times and had no difficulty in making safe landings. On the last flight he purposely did not cut loose but flew across the field tied to the auto and at an elevation of about 50 ft., but instead of flying straight he swung from side to side at will deflecting the towing cable as much as 35 deg. This satisfied us that tip vanes are a good practical way of getting quick and ample control in yaw. Upon landing the pilot used both vanes, introducing drag at both tips and appreciately cut down the landing speed.

"There are reasons why I think that tip vanes are superior to a rear rudder especially for soaring. A soaring machine has to have a high value of L^3/D^2 and to get this one must have a very large wing aspect ratio. But this means a large moment inertia about the vertical axis. If then we also have a long tail we increase still more the moment inertia in yaw and thus makes it difficult to get quick yaw control. Thus our wing is 40 ft. from tip to top and when Mr. Claverie started a turn with the rudder the turn was slow and having started it was hard to stop it with the rudder. With tip vanes at the wing tips however, very quick control in yaw was obtained.

"There are some other reasons why I like tip vanes, which I will discuss later when this research work has progressed farther.

"I have placed up on the glider the following instruments: A double venturi mounted with a wind vane on a horizontal axis, its orientation giving the angle of incidence. This venturi is connected to a sylphon of five barograph cells, and when calibrated in the wind tunnel will turn static pressure into air speed. There is an altimeter to give the speed correction for altitude, and then the inclinometer which gives the angle between the chord and the horizon. All of these instruments are mounted close together on a frame carried by the wing but three feet ahead. They are so placed that all can be photographed on one plate by a camera in the cockpit. Since the weight of the glider is known we have all the data for getting performance. The calibration has not yet been made.

"Our work is now finished at Ross Field. We are moving to March Field where we will have more room. We will use a longer cable and get altitudes of seven or eight hundred feet before cutting loose. We are making a new wing which is smaller thus increasing the loading and the speed.

"Already these experiments have convinced me and my pilot that we have here a cheap and good method of giving preliminary training in flying. I suggest that a two place sociable glider with dual controls be used. At very little first cost and practically no upkeep many men could be trained to land a machine without power in winds, and from altitudes of three or four hundred feet. After such a training it seems to both me and Mr. Claverie that to switch a man from the glider to a power machine would be easy and very safe.

"I hope the Government will give this suggestion some serious attention, since it offers a means of getting partially trained men at a cost very much less than any training which starts with power machines."

AIRPORTS AND AIRWAYS

Cleveland Notes
By Cy Caldwell

The Cleveland Chapter of the National Aeronautic Association, the Cleveland Chamber of Commerce, and other civic bodies are active in the extension of the Air Mail and are cooperating closely with Henry A Taylor, the Postmaster of Cleveland, in spreading information and helpful suggestions for the use of this valuable Air Mail Service. At a luncheon of the Cleveland Chamber of Commerce on the 8th, Luther K. Bell, traffic manager of the Air Mail Service, spoke on the value of the service to Cleveland business men. "Transcontinental air mail service is not an experiment to be watched," he said "It is a serious business endeavor" Mr. Bell was highly pleased with the prompt and efficient support accorded the service by Cleveland business men "Air Mail so far as Cleveland Division is concerned," said Glenn L. Martin, "has been functioning with extreme regularity, and one cannot visit the field without being inspired with confidence in Air Mail and its future."

Lt. George Cuddihy, U.S.N., accompanied by First Class Rigger C Lateky, flew the Navy CS1 from Washington to Cleveland for delivery to the Glenn L. Martin Co. to be used as a Dog-plane—a model after which other planes are built. The Martin Company have their production plans well under way, and will soon turn out the first of the 35CS planes and spares for the Navy And as is their custom they will probably have the first plane ready for test before scheduled production date.

Air Mail Pilot Earl F Ward has been awarded the Distinguished Fortitude Medal with palms for exemplary devotion to duty in the face of the most dangerous manifestation of nature ever encountered by a pilot. His heroic fortitude in bringing his ship in on time despite conditions that would have delayed or halted nine out of ten experienced pilots has been the subject of unstinted praise in Cleveland, and I have been requested by the President of the Safety First League to give Mr Ward's thrilling experience nation-wide publicity, which it certainly deserves, for no man of less stern caliber than Mr Ward could have battled successfully Nature in one of her most dangerous phases.

Flying the Air Mail from New York last Sunday, Ward was hitting along quite low to keep under the clouds that hung over Ringtown Mountain when he chanced to glance down at the reservoir that nestles on the mountain, surrounded in all directions by several miles of virgin forest, unpenetrated by roads, a primeval wilderness Imagine Ward's feelings when his glance discovered four beautiful girls standing on the marge of the reservoir absolutely *au naturel* ! Just imagine that while I explain for the benefit of those who do not understand French that the four maidens were standing there just like Eve before she got a hankering for fruit.

Ward changed his glance into a good long look, and circled around the reservoir, while the young nymphs disported themselves and waved up to him to come down That sounds tame as I write it—but just imagine it !

But did Ward stay there circling around until his gas was all gone ? Did he land on the tree-tops bordering the reservoir ? Did he drop his plane into the lake and swim ashore ? He did not ! With pride in humanity I record this triumph of man over Nature. He did not ! He may have faltered, mind you He may have wanted to throw that DH and the mail and himself into the water He may have even started to take off his shoes. I don't know—every man has a right to reserve his own thoughts. But I do know, and I write it with revivified faith in the fundamental goodness of Man, he turned that DH westward, took one long lingering look, gritted his teeth until he wore through a new amalgam filling, and shot toward Bellefonte where he landed on schedule, mark that !

Later on the trip, at Greenville, Ward saw a tree struck by lightning, but after what he had seen at Ringtown he didn't give the lightning a second glance.

Yesterday I went to the station to buy a ticket for Ringtown, Pa. I have heard that it is a beautiful place. But there wasn't a ticket to be had. All had been sold. It must be a wonderful place.

* * *

Famous last words:

"Watch me come out of this next loop just a few feet above the ground."

Chicago News
By R. W Schroeder

The weather has been bad every Sunday for the last six weeks, and therefore little has been done in aeronautics at Heath Airport.

W. W Meyer flew to Lorain and Sandusky, Ohio, last week, to take airplane pictures of the devastation wrought by the storm there He left in the Heath Favorite at six in the morning and returned just before night.

Saturday Meyer spotted a big fire in Norwood Park and took some passengers over to watch it. Sunday he spotted the Yellow Cab garage on Broadway on fire and made several trips with passengers to watch the fire.

The Heath shops are making good progress with the four-passenger Standard, also the six-passenger special job built along the lines of the mail plane design which the Heath Airplane Co has submitted to the Post Office Department They are also making two 15 ft. propellers for use on a helicopter This is quite a size for an ordinary wood propeller

Chance Lossong is now flying at a field on Ballard Road near Milwaukee Ave. He has just bought LaPierre Cavender's Laird Swallow. Cavender expects to build up a four passenger Standard

On July 2 the Mulvihill Trophy was awarded to E. J. Lange in the club room of the Illinois Model Aero Club. Mr Lange then turned the Trophy over to the club for safe keeping and to enjoy the splendid thought that it represents.

The boys present were practically all that were at St. Louis last year, plus most of the club's other members.

Cincinnati News

The first week of July was the biggest week Cincinnati has seen in aviation activities since way back in the days of the Cincinnati Aircraft Co's activities, on the Madisonville field, in 1920

Twenty-nine ships kept flying in and around Cincinnati, all enjoying a lively business, and attracting the attention of possibly half a million people over the holidays. Kindred's Flying Circus, with Mr Armstrong's death defying acts at Grisard Field (Blue Ash) was the center of attraction July 4, 5 and 6 Hugh Watson had half a dozen passenger ships there, working all the time LeRoy Davis and Jake Lotnak, operating from Turkey Bottoms, had all they could care for

Pilot Taylor, with W O. Gibson of Richmond, Va., as a passenger from Ashland, Ky., to the Latonia Races secured first page headlines with follow-ups as a "Missing Aviator" story He was forced down at Maysville and Gibson continued by rail

G F Klampferer of the 59th Squadron, Langley Field, has a Lay Model M2 sport plane under way

H I Trumm of Pontiac, Mich., H. E Danerseau of New Orleans and D Walter McBain of Geneva, Ill., are the latest "Dixie" owners.

F W Marting of Ironton, Ohio, visited Mr. Lay the 6th and is placing an order for a "Special Dixie" which it is hoped to bring through by Aug. 1

Air Mail Extension Committee Formed

The Aeronautical Chamber of Commerce announces that the Air Mail Extension Committee has been organized for the purpose of affording all business men an opportunity to give expression of their appreciation of the great advantages to them and to all users of the mail, through the permanent establishment of the Transcontinental Air Mail upon the basis at a 32 hr schedule from New York to San Francisco.

Among the group interested in and supporting the Air Mail Committee are included the Merchants Association of New York, the National Publishers Association, as well as many important bankers, insurance companies and large manufacturers and distributors. Among the latter are W Avrill Harriman of United American Lines, C C Campbell, vice president, Seaboard National Bank, Robert E M Cowie, president, American Railway Express Co; Francis H Sisson, vice president, Guaranty Trust Co, Jesse Isidor Straus, president R H Macy & Co; F R Towle, vice president and general manager Wilcox and Gibbs Sewing Machine Co, C F. Wilmer, Chairman of Board, Goodyear Tire & Rubber Co.; Elmer A. Sperry, Sperry Gyroscope Co of New York; Edsel B Ford, Ford Motor Car Co, Harold H Emmons, president, Detroit Board of Commerce, Roy D Chapin, Chairman of Board, Hudson Motor Car Co, William E Metzger, vice president, Columbia Motors Co; Chas. T. Bush, president, C A Strelinger & Co.; Alvan Macauley, president, Packard Motor Car Co., H H. Rice, president, Cadillac Motor Car Co. of Detroit, the Cleveland Chamber of Commerce, C E Thompson, president, Steel Products Co, F W Wood, president, The Wood-Spencer Co of Cleveland, Allan Jackson, vice president, Standard Oil Co. of Indiana, Chicago, Louis S. Cates, vice president and general manager, Utah Copper Co, Salt Lake City, James Otis of Otis, McAllister of San Francisco

Part of the flying equipment of the Laurentide Air Service, Ltd., at its Three Rivers, P Q., base. The company owns altogether thirteen HS flying boats, which it uses for passenger transport

Laurentide Co. is Active

The Laurentide Air Service Ltd, 922 Drummond Bldg, Montreal, has inaugurated a flying boat service between Angliers at the end of the C P R line and the gold districts of northern Quebec and Ontario This company has been engaged during the last two years in mapping aerially northern Ontario for the Provincial Government

The company's pilots are all ex-service men who have had overseas experience in flying, and since the signing of the armistice the pilots have been able to continue their work in commercial planes.

The fare for the daily schedule trip to Lake Fortune and Lake Rouyn connecting with C.P.R trains is $50.00. Special trips to Lake Rouyn or Lake Fortune can be arranged for at special rates

Weight Allowance—per passenger, including baggage—220 lb

Excess Weight—charged at express rates.

Types of Machines—Flying boats.

Power—330 hp Liberty Motors

Speed—High speed 85 mi/hr, cruising 70 mi/hr.

Capacity—Five passengers including pilot or 1,000 lb Supplies or equipment

The accompanying illustration shows some of the HS flying boats of the company at its Three Rivers plant on April 21, 1921, ready to take the air. A few hours after this picture was taken the first two machines taxied out through the ice and flew from Three Rivers to Sudbury, Ont., a distance of approximately 500 mi. They were the first of thirteen machines purchased from the Laurentide Co. by the Ontario Provincial Government for forestry work this year The thirteen machines were delivered by air a distance of 500 mi in less than three weeks time without the slightest trouble.

The new transportation service to the Quebec Goldfields is the first of its kind in Canada, if not in the world, and it is the first attempt in Canada to use the airplane for the regular transportation of passengers and supplies to the remote and inaccessible parts of the country The air trip is made from the head of C.P.R steel at Angliers to the Goldfields in about 45 min. flying time The time by motor boat is anywhere from 35 to 60 hr, and the fares are about equal The Laurentide handles almost all the passenger traffic in this district and has more freight than it can deliver promptly The success to date of this service was a great surprise to all concerned, and as a result the Laurentide expects to carry the service on throughout the coming winter

Dayton News
By Maurice C Hutton

Mr and Mrs. A E Johnson, of the Johnson Airplane and Supply Co, and their three-year old daughter had an exciting time in northern Ohio last week during the tornado which ripped through several towns fronting on Lake Erie They were en route to the new field of Johnson's Flying Service at Buffalo, N Y, in a Swallow plane, when they ran into the high winds at Cleveland

"It seemed as though we had suddenly changed our seats for places in a racer," Mr Johnson recounted on his return here "Our speed increased to nearly 200 mi/hr and we passed one stretch of 21 mi in six minutes flat"

The last hour of the flight was in a driving rainstorm Despite the unusual conditions the plane performed beautifully, Mr Johnson related

Winds which raced across the Buffalo field at about 70 mi./hr the next day prevented the celebration in connection with the opening of the airport.

New Orleans News

The New Orleans Model Aeroplane and Glider Club was organized on July 3 at New Orleans at a meeting of enthusiasts held in the editorial department of the New Orleans *Item* Theodore Ray Liuzza was elected president, Leonard Pons, vice president, Lester Giarusso, secretary, and Lucas Sansovich, treasurer

Charter members of the club are Alexander Vuillemot, Frank Restivo, Hugh Iglehart, Theobold Bass, Jr, Anthony Danepolis, William Castillon, Aaron Scallan, George McInerny, Joseph N Liuzza, Peter diMartino, Horace Truxillo, Clarence Truxillo, Samuel Orlando, Albert Rodehorst, Christopher Yacich, Vincent Buffa, Antoine Almerico, Adolph Pejares, Roy Pejares, Joseph Chiesei, Nicholas Franovich, Philip di Franco.

The club will meet twice a month One of the requirements for membership is that everyone build a model airplane capable of flying, and that all members ride in a passenger carrying plane.

Los Angeles News

The Earl S. Daugherty School of Aviation, which operates two flying fields near Los Angeles, is headed by one of the veteran pilots of America. Mr. Daugherty has been in aviation for the last thirteen years, of which he spent five years in exhibition flying and twenty-two months as an instructor in the U. S. Army Air Service, during the war. He has had about 4500 hr. in the air, and he enjoys the distinguished record of having so far carried over 13,000 passengers without a serious mishap. In his school Mr. Daugherty has trained several hundred students in the art of flying, in addition to giving a great many exhibition flights and building airplanes to his own designs.

In connection with Lieut. Al Williams' feat of flying through the Lakehurst airship hangar during the recent meet there, a California correspondent calls our attention to the fact that Mr. Daugherty some time ago flew his Polson Special under a bridge which is only 80 ft. wide, with the water level 19 ft. from the arch. At another time he flew a Spad under telephone wires and over shrubbery into a field. Recently, however, after having married, he decided that he had done enough exhibition flying for one man, and so he will fly for pleasure only in the future, though keeping an active interest in his flying school.

Mr. Daugherty holds F.A.I. Aviator's Certificate No. 87, issued by the Aero Club of America. He is president of the Commercial Aircraft Association of Southern California.

* * *

The equipment of the Daugherty School of Aviation, which is shown in part in the accompanying illustration, consists of one Orenco five-seater, one Fokker two-seater, two Spad VII, one Nieuport 28, one Polson Special, five JN4D's, and one Canadian Curtiss.

Eddie Brooks, who has been flying through Colorado and other Rocky Mountain States is now flying for the School, teaching and carrying passengers.

Pilots and their ships now flying at the Daugherty Field are Wm. Fry (JN4D), Thor Polson (JN4D), J. W. Boyd (Laird Swallow), Ray Crawford (JN4D), Ray Freeman, (Thomas Morse), L. J. O'Donnell (Thomas Morse and JN4D), Wm. F. Meyer (JN4D), Ray Carpenter (Lincoln Standard and JN4D), and Al Ebrite (Hisso Jennie).

Mr. Daugherty's last pupil, Wm. F. Meyer, has the distinction of being probably the smallest aviator in the United States and most likely in the world. He is 4 ft. 8 in. tall, 75 lb. weight and 26 years old.

* * *

Earle L. Ovington, who was flying in 1910 and 1911 through the East with a Blériot monoplane was a visitor at the Daugherty Field June 28. He is visiting all the flying fields of Southern California from Santa Barbara to San Diego, flying a Curtiss JN4D.

A wonderful job of woodworking and airplane construction is shown in the new Belcher monoplane which was flown on its test flights by Bud Creeth a few days ago. It is a cabin monoplane in which the body and wings are made up of very thin strips of wood woven together. Both the interior and exterior rival the work shown on any high priced auto and it is making those interested in aviation in Southern California sit up and take notice.

* * *

The Kinner Airplane Co. and J. J. Montijo of Glendale Airport have both finished and successfully flown two new type 5-passenger cabin biplanes.

* * *

The Las Turas Lake Country Club was induced by Earle L. Ovington, Commodore of the Santa Barbara Aero Club, to establish a flying field on their 8000 acre club land. Over 100 acres were dedicated for a flying field and were graded until perfectly level and in the best of condition.

On June 22 the Aero Club of Santa Barbara held its first Annual Meet and Barbecue. Fifty-three civilian, Army and Navy airplanes flew in to Las Turas Field from Los Angeles, Long Beach, Santa Monica, Glendale, San Diego, Santa Barbara and other Southern California cities.

At this meet the Las Turas Aero Club was organized. Officers elected were Noel Davenport, commodore, Earle L. Ovington, vice-commodore, Earl S. Daugherty, rear-commodore, and Dr. Byrke Saxby, secretary and treasurer.

Some of the equipment of the Earl S. Daugherty School of Aviation, lined up on one of its flying fields at Los Angeles

D. H. Robertson Married

After winning a battle against death, Capt. Douglas H. Robertson, a former ace in the Royal Flying Corps, married his nurse, Margaret K. Hogentogler, formerly of Philadelphia, on July 4.

The romance began several months ago, when Robertson was hovering between life and death with a broken back and numerous lesser injuries in the Atlantic City hospital. The bride is a graduate of the Presbyterian Hospital at Philadelphia.

The couple will make their home at Pine Valley, where Captain Robertson was in charge of the Curtiss flying station before his accident.

Airplane Travel Cheap in Poland

It is almost as economical to travel by airplane in Poland as by railways, and much more convenient, Consular advice to the Department of Commerce states. Although airplane rates are much higher than last year, it is still possible to travel from Warsaw to Danzig for about $13.50, whereas a railway ticket with sleeping berth for the same distance costs $12.80.

Express trains from Danzig to Warsaw make the run in 9½ hr., whereas airplanes cover the same route in three hours. Junkers cabin planes are used on this line.

UNITED STATES AIR FORCES

U. S. ARMY AIR SERVICE

Trick Shooting at San Antonio

Perhaps the most remarkable bit of trick shooting in the annals of the Air Service was performed recently by one man Dayton. Prior to June 8 he had gone on the range, listened intently to his instructors, fired the preliminary course, and through the kindness of Allah qualified to shoot the record course, which invariably resulted in a total fizzle. He would aim, then try to throw the projectile from the gun while his sights were still on the target, or before they wriggled off line.

A short time ago Lieut. John M. Clark reported at the Depot for duty, having completed his foreign service tour in Panama. Clark himself can hit a bull's eye without half trying, and after watching Dayton perform with an empty gun bet that with very little instruction he could instruct the latter so that he could qualify as Expert. Dayton was skeptical, as were the other officers.

Clark took Dayton to the range, and after a hectic and more or less discouraging hour succeeded in getting his protege to squeeze the trigger. Then came some encouragement for both. Clark finally got his man tuned up to such a pitch that it was doubtful as to whether Dayton could get below a 9. A remarkable preliminary course was shot. That night Dayton took the old 45 out on the field and spent a good hour aiming and following Clark's instructions to the letter. Early the next morning the two gun men journeyed to the range where the record course was to be fired. The protege walked up to the line and began knocking out bull's eyes—nine and a very few eights. At 50 yd. with the bull's eye looking like a small spot of ink a score of 55 was made. On the bobbing targets 27 out of 28 hits showed up. When the smoke of battle had cleared away Dayton had made a score of 93.67%. The protege thinking he was pretty good, in fact knowing he was, suggested that they shoot for the drinks. "All right," said Clark, "we will each take one full clip and in 10 sec. at 30 yd. see who can put seven shots in a bobbing target." After trying to coax a few more seconds out of Clark, but to no avail, the two gun men started shooting. Clark put seven in the target in the ten seconds, and cleared a jam at that. Dayton had five in, one on the stick just a couple of inches below the target, and one clear miss. The above test is highly recommended to anyone desiring to determine his ability at trigger squeeze.

Parachute Saves Pilot's Life

Many fliers were converted to the use of the parachute recently at Kelly Field, Tex., when Lieut. W. W. White's life was saved following a collision in mid-air at about 1300 ft. from which he alighted safely by use of his parachute. Lieutenant White's plane during formation maneuvers came down directly on top of a ship piloted by Lieut. S. L. Thompson.

Lieutenant White states that immediately after the terrific crash due to the impact of the two ships, they became locked together and he ceased to have any control over his plane. As soon as he found that he was unable to guide his ship and seeing that the two ships seemed to be in an almost vertical dive toward the earth, he attempted to jump from his cockpit. He stood on the pilot's seat and put his hands on the cowling and tried to push himself clear, but whether from fright or force of gravity he was unable to do so. Finding himself unable to jump from the ship, he pulled the ring of his parachute and immediately felt himself gently lifted clear and saw the tail surfaces slowly glide away beneath him.

As he neared the earth it seemed to him as though he were going to land directly on top of the wreckage of the two planes which had crashed, and fearing that they would burn, he grasped the shroud lines on one side of the parachute and slipped a distance of about 200 ft. away from the spot where the ships struck. When he saw that he was clear he released the shroud lines and alighted safely. He immediately ran to the wreck and found both ships totally demolished, both motors side by side buried below the surface of the ground. Unfortunately, Lieutenant Thompson, who was in the other plane was either stunned by the force of the collision or was unable to get out of the lower ship and was instantly killed.

This was Lieutenant White's first experience in the use of the parachute and he hopes it will be his last.

Parachute Flares Illuminate Target for C.A.C.

The 4th Observation Squadron at Wheeler Field, H. T., recently demonstrated a successful method of tracing a Coast Artillery night target after it is beyond the range of or lost by the shore searchlights. The plane piloted by Lieut. W. C. Goldsborough, with Lieut. Courtland M. Brown as observer, dropped regulation Air Service parachute flares over the target, beyond the range of searchlight beams. This work was accomplished with each battery of the Hawaiian Coast Artillery District and due to the intense light of the flare the shore observation posts could not locate the target, but the airplane observer could follow the target perfectly. The fire of the battery could be regulated by the observer at any given range from the shore.

This method of fire also demonstrated the possibilities of bombing planes working at night over sea targets. Another point brought out by illuminating a target with the parachute flares beyond the searchlight range is that in case of a shore fog the airplane would be enabled to regulate fire on a battleship or sea target when the shore O.P.'s could not possibly observe.

San Antonio A.I.D. Has a Rosy Appearance

At the San Antonio Air Intermediate Depot, Kelly Field, Tex., in front of the main warehouses and fronted by a velvet green lawn, a 14-ft. latticed steel wire fence extends for about 250 ft. Half of this length from bottom to top is covered with spreading and climbing rose vines. There are thousands of large and perfectly formed pink and red roses on these vines. Hundreds of travelers on the Pearsall Road, who pass this sight, invariably slow their automobiles or stop to admire the beauty of the blooms. On the flying field here masses of white English primroses lay like patches of late snow on

CALENDAR OF AERONAUTICAL EVENTS

March 25.	Start of the British World Flight, Southampton, England.
April 6.	Start of World Flight of the U. S. Army Air Service, Seattle.
August.	"Tour de France des Avionnettes." International Round-France race for light airplanes.
Oct. 2-4.	International Air Races, incl. Pulitzer Trophy Race, Dayton, Ohio.
Oct. 24-25.	Schneider Cup Race, Baltimore.
Dec. 17.	Twenty-first anniversary of the first successful airplane flight.

fresh green fields, and clusters of bright lavender verbenas merge into the gold and green beds of marigolds and meadow grasses.

U. S. NAVAL AVIATION

New Launching Catapult

A new type of airplane catapult in which a powder charge is used for giving the plane its initial start instead of compressed air has recently been tested by the United States Navy with satisfactory results

In the new type the catapult gun contains a piston, which is connected through a series of multiple purchases or pulleys to a small wheeled car The car, on which the airplane is placed, runs on tracks, which are 50 ft. long and are secured to a platform located on the top of a battleship turret When the powder charge is fired in the gun, the piston being forced to move, acts through the pulleys, thus pulling the car suddenly forward along the tracks at a speed of sixty miles an hour, carrying the plane with it, says the Kansas City *Star*

When the car reaches the end of the track it is stopped by means of hydraulic and spring buffers. The plane, with its engine going full speed, is automatically released from the car and continues under its own power.

In the test made at the naval air station at Washington a single seater scout seaplane was used. The plane left the catapult car and continued its flight without any drop in altitude below the level of the tracks, which is unusual This fact was particularly pleasing to the officials, since heretofore it has been necessary to have the tracks at such a height above the water that catapults were impracticable for several types of ships on which it was desired to have them installed.

The principal advantage of the gun type catapult over the compressed air type lies in the speed and facility with which a number of planes may be catapulted from a plane carrier. In using compressed air it is necessary to recharge the air tanks after each shot, which takes considerable time. By the use of the gun type the enormous space and weight of the air compressing machinery will be obviated All airplane carriers and other types of ships carrying airplanes will be equipped with the gun type catapult as soon as the Navy Department can build and install them

A Suggested National Air Policy

That a National Aviation Policy is needed by the United States is obvious. To get such a policy in concrete form AVIATION *requested several thoughtful friends of aeronautical progress to make suggestive and constructive recommendations. Some of them are given below and will be printed each week with additions, omissions and such other changes as appear to be helpful toward the formulation of a sound national air policy. Readers of* AVIATION *and others can render no greater service to the cause of aeronautical progress than contributing their comments and suggestions.*

GOVERNMENTAL.

A continuing program of aircraft development both governmental and commercial

A civilian, charged with championing a national air policy, is needed in the Government

Aircraft committees in the House and Senate to hold aircraft hearings where civilians as well as government officials can express their opinions.

A detailed aircraft budget for all Governmental Departments, and an annual statement of all expenditures

An experienced staff of flying officers at the head of all governmental air defense services.

Coordination of all procurement and experimental aircraft work of the government under one agency.

Limitation of government manufacture to repair of aircraft and specialized work that cannot be done by private firms.

The elimination of the duplication of aerial functions and facilities by government departments.

A country wide Air Mail system of trunk lines connecting the principal cities of the country.

Establishment of a National Airway System through cooperation of the Federal Government with States and Cities.

A national aircraft law that will regulate aviation, administered by practical pilots and experienced aeronautical engineers

Membership of the United States in the International Convention for Air Navigation.

COMMERCIAL AIRCRAFT OPERATION.

Creation of commercial air lines by private enterprise or government subsidy.

Encouragement of participation by private companies in aircraft races and competitions.

Encouragement of the training of pilots by civilian schools

Creating an Esprit de Corps among flying men all over the country by frequent gatherings at aviation meets.

INDUSTRIAL AIRCRAFT CONSTRUCTION.

Recognition that a sound aeronautical industry is a prime necessity of our National Defense.

An active industrial association that will coordinate the aircraft industry and defend it from attack.

Encouragement of the designing of new types of aircraft by manufacturers by allowing them to retain their proprietory rights

Concentration of manufacturing firms on specialized types of army and navy aircraft.

Encouragement of research by constructors, universities and other agencies as well as by the government

Encouragement of an annual design competition for commercial aircraft.

CIVILIAN.

A national aeronautical organization composed of public spirited citizens that will take a strong position of leadership on national aeronautical policy.

An Annual Aviation Week during which the country will think of aerial progress.

The formation of local aero clubs by fliers for the purpose of stimulating flying in all localities

Encouraging the public to fly and patronize the air mail and transport facilities.

PUBLISHER'S NEWS LETTER

There have been several requests from readers of AVIATION for more detailed information regarding the progress of the Round the World Flight. So that the reason for the scarcity of news concerning this flight may be known, we quote from a letter received from the office of the Chief of Air Service

"The data which you have in copy of log sent us is about as complete as we have ourselves The fliers have not been encumbered with making out long detailed reports at every stop, which has perhaps been one reason for the success of the Round-the World flight, thus far. The time of arrival and departure is about the only information we receive from the flight commander"

Until we were sure that further information was not available we have not published a log of the flight thus far With this issue we commence the publication of a log of the flight from the beginning It is largely a compilation of newspaper despatches and offical bulletins from Washington Some of our readers have written us that as there have been omissions in their local newspapers they hoped AVIATION would supply more ample news. This we are attempting to do, and for the remainder of the flight this log will be added to each week until the flight is completed

* * * *

We are often asked "What is the matter with aviation in this country ?" There are many conjectures and answers made that apply to special fields It is comparatively easy to make constructive suggestions as to the governmental deficiencies but in fairness it should be realized that the officials in charge are limited in their action by law, by precedent, by antagonistic associates in the departments and in some cases by lack of experience Criticism of the motives of those who delight in the great publicity given them from their connection with aeronautic activities also reveal many jealous es and petty trivialities that tend to hold back real progress The industry that has been struggling to hang on until the dawn of the aerial day, has had quite enough criticism, most of it coming from disappointed sources, or prompted by self-interest. In fact self-interest is so controling in almost all that happens in aeronautic history that it might as well be called by its real name

* * * *

From its point of view, AVIATION can frankly say that it believes that one of the shortcomings of the aeronautical industry is a lack of foresight in establishing that most essential of all business assets—good-will With very few exceptions the aircraft manufactures go on the principle that they cannot afford to create good-will until they get orders. And when they get orders, they feel that their product will create its own good-will. This circle of reasoning means that instead of developing a feeling of confidence and satisfaction in aviation, the industry allows itself to be criticized and its products buffeted about by the breezes of uninformed comment. At this point it may be asked, what is tha answer ?

* * * *

AVIATION can only point to practically every other industry that has succeeded and show that almost the first item in any budget is that of advertising Instead of waiting for orders to produce an income part of which can be used to create good-will—the usual procedure is to create good-will by advertising *before* sales and then emphasize the merits of the product by what may be termed "follow through" advertising Hitting the ball, to use golf language, is only the beginning of a stroke—the follow-through is equally important Advertising, in any form, must cover the complete stroke to be satisfactory.

With these general principles in mind, it must be apparent that the aeronautical industry as a whole has been very backward in its publicity plan. It has largely relied on the press agent and free publicity to give it prestige While these are always factors in any plan, no amount of attention can make this kind of publicity a direct sales force The reason for this is that it only deals with news values and not with the merits of a product Of course, aircraft that fly around the world justify their claim to excellence as cruisers, but their constructional features and utility for special military or naval uses are not emphasized

* * * *

As an illustration of the misconception that general publicity sometimes creates, a War Minister in a Central American Republic directed one of his fliers to prepare to fly to the United States When informed that it was impossible with the type of aircraft available, the Minister showed his credulity by enquiring, "Didn't aircraft fly across the Atlantic ?" It is just these general and indefinite ideas that are created by general publicity The only way the specific uses and constructional excellence of aircraft can be given proper treatment is through advertising prepared by the manufacturer

* * * *

It is one of the inconsistencies of aviation to see men whose business increases have been based on advertising overlook this essential cog in their sales mechanism Men of large interests who are interested in the promotion of commercial aircraft do not seem to realize that the problem of aviation promotion is just the same as any other As we pointed out, self-interest is usually to be detected in all aeronautical discussions AVIATION, being the only aeronautical paper that describes new aircraft in detail and gives its readers technical descriptions, justifies its belief that it is the proper place for aircraft manufacturers to tell their story to the aviation world—other publications have their own special appeal, but AVIATION is read by those who know aviation and who desire informed descriptions of aircraft and its uses.—L. D.G.

The Aircraft Service Directory

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